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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/019,080

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David Cotter

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EXAMINER

BELLO, AGUSTIN

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/019,080	COTTER, DAVID	
	<b>Examiner</b>	<b>Art Unit</b>	
	Agustin Bello	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,7 and 8 is/are rejected.
- 7) ☒ Claim(s) 3 and 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pruncal (U.S. Patent No. 5,841,560) in view of Huang (U.S. Patent No. 5,309,267).

Regarding claims 1 and 4, Pruncal teaches an optical regenerator (Figure 1) including: a data division stage (reference numeral 20 in Figure 1) arranged to receive an incoming optical data stream having a bit rate (e.g. output of reference numeral 12 in Figure 1 outputting an optical data stream having a bit rate equal to "f" of column 2 lines 1-16) and to divide the incoming optical data stream into a plurality of further optical data streams (reference numerals 22, 24 in Figure 1) each having a lower bit rate than the bit rate of the incoming data stream (e.g. "f/2" by virtue of the "gating signal generator being synchronized with the pulse train" at a rate of "f/2" column 2 lines 6-16), and a regeneration stage (reference numerals 26, 28, 38, and 40 in Figure 1) including a plurality of optical gate means (reference numeral 26, 28 in Figure 1) each arranged to receive a respective one of the further data streams (reference numerals 22, 24 in Figure 1), and to receive at another input an optical clock stream (reference numerals 32, 34 in Figure 1) at the frequency of the bit rate of the further data streams or a multiple thereof (e.g. "f/2" by virtue of the "gating signal generator being synchronized with the pulse train" at a rate of "f/2" column 2 lines 6-16), wherein the outputs of the gate means are connected in common to an optical output of the regenerator (reference numeral 40 in Figure 1) and arranged to provide a

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bit-interleaved regenerated optical data stream at said output (as seen in Figure 3 "STAGE 1").

Pruncal differs from the claimed invention in that Pruncal fails to specifically teach that the each of the gates is arranged to receive a respective one of the further data streams at its control input and that the interleaved regenerated optical signal is at the bit rate of the original received optical signal. However, as noted by the applicant (specification page 1 lines 28-30), arranging an optical gate means to receive a data stream at its control input is well known in the art. An example of this well known method can be found in Huang which, in the same field of optical regeneration, teaches arranging an optical gate means to receive a data stream at its control input (column 3 lines 34-38 and column 4 lines 14-18). Huang further teaches that the regenerated signal output from the regenerator is at a bit rate of the originally input signal (column 3 lines 41-44). One skilled in the art would have been motivated to arrange an optical gate means to receive a data stream at its control input in order to substitute a fresh clock pulse for each deteriorated data bit, thereby regenerating the data (column 7 lines 27-31 of Huang). One skilled in the art would have been further motivated to create a regenerated signal at the bit rate of the originally received optical data signal in order to encode the data pattern of the received signal onto a new clean clock signal (column 3 lines 38-41), thereby retiming the received optical signal. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to arrange the optical gate means of Pruncal to receive a data stream at its control input as taught by Huang in order to substitute a fresh clock pulse for each deteriorated data bit, thereby regenerating the data.

Regarding claims 7 and 8, the combination of references teach a node (reference numeral 14 in Figure 2 of Pruncal; reference numeral 120 in Figure 1 of Huang ) for connection in an optical network (Figure 2 of Pruncal; Figure 1 of Huang) including a regenerator (reference

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numeral 14 in Figure 2 of Pruncal; reference numeral 150 in Figure 1 of Huang ) according to claim 1.

3. Claims 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pruncal in view of Huang as applied to claims 1 and 4 above, and further in view of Desurvire (U.S. Patent No. 6,556,322).

Regarding claims 2 and 5, the combination of Pruncal and Huang differs from the claimed invention in that it fails to specifically teach that the data division stage includes a plurality of optical gate means each arranged to receive the incoming data stream at a respective data input and to receive at a respective control input an optical clock stream at the frequency of the bit rate of the further signals and delay means arranged to impose a different respective delay on the said optical clock stream relative to the incoming data signal for each of the respective gate means. However, such a data dividing stage is well known in the art. Desurvire, in the same field of optical time division multiplexed signals, teaches a data division stage (reference numeral 110 in Figure 1) including a plurality of optical gate means (reference numerals 111-114 in Figure 1) each arranged to receive the incoming data stream at a respective data input (reference numerals S1-S4 in Figure 1) and to receive at a respective control input an optical clock stream (column 4 lines 19-27) at the frequency of the bit rate of the further signals (column 2 lines 35-39) and delay means (reference numerals 115-118 in Figure 1) arranged to impose a different respective delay (as seen by the variation of the number of delay loops at reference numerals 115-118 in Figure 1) on the said optical clock stream relative to the incoming data signal for each of the respective gate means. One skilled in the art would have been motivated to include a data division stage as taught by Desurvire as the data division stage taught by the combination of Pruncal and Huang (reference numeral 20 in Figure 1 of Pruncal) in order to

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detect free or unoccupied channels (column 2 lines 15-20 of Desurvire). One skilled in the art could reasonably expect to succeed in implementing the data division stage taught by Desurvire as the data division stage taught by the combination of Pruncal and Huang since the data division stage of Desurvire (reference numeral 110 in Figure 1) like that of Pruncal (reference numeral 20 in Figure 1) takes a time division multiplexed optical input signal and outputs a time division demultiplexed signal. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to employ the data division stage taught by Desurvire as the data division stage of the combination of Pruncal and Huang.

*Allowable Subject Matter*

4. Claims 3 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter: Regarding claims 3 and 6, the prior art fails to teach or fully suggest all the limitations of the claimed invention. The prior art fails to teach or fully suggest a regenerator being arranged to regenerate a bit-asynchronous optical packet and in which each of the gate means of the regeneration stage includes an array of optical gates, means for imposing different respective delays between the clock signal and the data signal at each of the gates making up the array and switch means for selecting an optical output from one of the gates in the array depending on the bit-level phase of the received optical packet. The limitations of claims 3 and 6 when taken into consideration with the limitations of claims 1 and 4 respectively, read over the prior art cited by the examiner in that neither Pruncal nor Huang further teach that each of the optical gates of the regeneration stage include arrays of optical gates, delays, and a switch to select a single output

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from the gates depending on the bit-level phase of the received packet. These limitations differentiate the claimed invention from the prior art in that they further define the gate means of the combination of references.

***Conclusion***

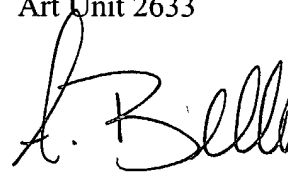
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (703)308-1393. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703)305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AB

Agustin Bello  
Examiner  
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A handwritten signature in black ink, appearing to read 'A. Bello', is written over the printed name and title of the examiner.